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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/764,920

01/26/2004

Andreas Sibrai

DS03-005A

2954

7590

06/09/2006

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EXAMINER

RUTLAND WALLIS, MICHAEL

ART UNIT

PAPER NUMBER

2835

DATE MAILED: 06/09/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

H.A

Office Action Summary	Application No.	Applicant(s)	
	10/764,920	SIBRAI ET AL.	
	Examiner	Art Unit	
	Michael Rutland-Wallis	2835	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 26 January 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-30 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-30 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 26 January 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>02/09/05 9/23/04</u> | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Information Disclosure Statement

The information disclosure statement filed 02/25/2004 fails to comply with 37 CFR 1.98(a)(1), which requires the following: (4) a column that provides a blank space next to each document to be considered, for the examiner's initials; and (5) a heading that clearly indicates that the list is an information disclosure statement. The information disclosure statement has been placed in the application file, but the information referred to therein has not been considered.

Specification

The disclosure is objected to because of the following informalities: on first page applicants should amend the references to XXXXXXXX should be changed to correctly identify applicants copending application and delete the docketing numbers referenced.

Drawings

The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, in claim 4 and 22 the integration of switching and capacitor components on separate substrates therefore

these separated substrates must be shown or the feature canceled from the claims. No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency.

Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d).

If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action.

The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

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The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-30 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Applicant has failed to identify the different means claimed in claims 1-30 in the disclosure. Applicant should amend the limitations in the claims to mirror the verbiage used in the specification (i.e. delete means limitations).

Claims 1-30 are replete with clarity and antecedent issues. At least the objections and rejections identified below should be corrected, however, additional errors may be present, as the office has made a best effort to identify all clarity and antecedent issues present in the claims. It is suggested to applicant to review claims 1-30 in an effort to remove any and all other clarity and antecedent issues not specifically identified in this action. The rejections and objections found below are made, as best can be understood by the examiner.

Claims 1, 14, 19 and 29 recites the limitation "means for a set of individual small capacitors". It is unclear whether applicant indents "a means for setting a set of ..." or is applicant simply intends "a set of individual small capacitors". For purposes of examination on the merits it is interpreted the office as a set of individual small capacitors in order to further prosecute the merits of the instant application. Therefore it is suggested to delete the limitations "means for" from the claim in order to clarify the limitation.

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Claims 1, 14, 19 and 29 recite the limitation "said capacitors in parallel" this limitation lacks antecedent basis. It suggested to amend said limitation to "said small capacitors connected in parallel"

Claims 1, 14, 19 and 29 recite the limitation "continually switch on" this limitation is indefinite and unclear. Once a switch is switched on it may not be switch on again until it is first turned off. This limitation should be amended to clarify said limitation such as: to continually switched on/off or to switched between conducting and non-conducting states

Claim 1 recites the limitation "a tuning voltage" in line 13 it is suggested this limitation be changed to "said tuning voltage". Similar reference is made to a tuning voltage in the other independent claims found in this application, therefore a similar recommendation is made to theses claims.

Claim 5 recites "said amplifiers" this limitation lacks antecedent basis.

Claim 11 the word "is" should be added in line 2 of claim between the words devices and connect.

Claim 12 recites the limitation "a circuit like a voltage follower" it cannot be determined the meets and bounds of this limitation.

Claim 14 recites the limitation "said linear controls" this limitation lacks antecedent basis.

Claims 18 recites the limitation "all amplifier inputs at the same time" this limitation lacks antecedent basis as amplifier inputs have not been positively claimed.

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Claim 19 the limitation "generate a set of controlling signals" should be changed to "generating a set of controlling signals"

Claims 26 and 30 at least the limitation "said operational amplifier" lacks proper antecedent basis.

Claim 27 at least the limitation "said amplifier stages" lacks proper antecedent basis.

Claim 28 at least the limitations "to all of said operational amplifier stages" and "all amplifier inputs" lacks proper antecedent basis.

It is also noted by the office applicant uses the terms "means for" and "means to" interchangeably. Should applicant not remove the "means" limitations as suggested above it is then suggested to at least amend either term in order to consistently and clearly identify applicants claim limitations.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –
(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-2, 8 and 11-13 are rejected under 35 U.S.C. 102(b) as being anticipated by Liu (U.S. Pat. No. 6,577,180)

With respect to claims 1-2, 8, 12 and 13 Liu teaches a circuit to control the capacitance of a variable capacitor in a linear mode through a tuning voltage and to achieve a high Q-factor at the same time; comprising: a set of individual small capacitors (see capacitors in Fig. 3); means for a set of switching devices (transistors in Fig 3) to continually switch said capacitors connected in parallel; a means to linearly control (item 50) the switching function for each of said set of continuous switching devices; means to generate (voltage supplied through resistor chain item 40) a set of controlling signals (see item 40 Fig. 3), directly depending on the tuning voltage input, one for each of the capacitor switching stages; means to generate (item 20) a set of threshold values, one for each of the capacitor switching stages; and means to (item 30) provide a tuning voltage, dedicated for the voltage controlled capacitance change.

With respect to claim 11 Liu teaches the means to linearly control the switching function for each of a set of continuous switching devices connect directly to said means to generate a set of controlling signals, directly depending on the tuning voltage input (see fig. 3).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 3-7, 9-10, 14-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Liu (U.S. Pat. No. 6,577,180)

With respect to claims 3 and 21 Liu teaches capacitors which are integrated into an integrated circuit. It would have been obvious to one of ordinary skill in the art at the time of the invention to use a common planar carrier as a means to hold the capacitors.

With respect to claims 4-5 and 22 are complements of each other as applicant points out it is known to use separate of similar substrates Liu teaches capacitors are integrated on a similar semiconductor substrate, while Liu is silent on particular separate or differing substrates used in the devices It would have been obvious to one of ordinary skill in the art at the time of the invention to use a separate substrate than said switching devices in order to common commercial components to construct said device.

With respect to claims 6 and 7 Liu is silent on the manufacturing of or manufactured type of capacitor used in the layout of fig. 3 as applicant points out in the specification any type of Metal-oxide or junction type may be used interchangeably. It would have been obvious to one of ordinary skill in the art at the time of the invention to select any common type of capacitor in order to construct the circuit as simply while reducing costs.

With respect to claim 9-10 and 24-25 Liu teaches the use of a MOS type transistor. It would have been obvious to one of ordinary skill in the art at the time of the invention to use a P-MOS, CMOS or junction type transistor as applicant use them interchangeably or to use the N-MOS type as the logic of the circuitry requires.

With respect to claims 14-18, 20, 23 and 27 Liu teaches a circuit to control the capacitance of a variable capacitor in a linear mode through a tuning voltage and to achieve a high Q-factor at the same time; comprising: a set of individual small capacitors (see capacitors in Fig. 3); means for a set of switching devices (transistors in Fig 3) to continually switch said capacitors connected in parallel; a means to linearly control (control terminals of transistors) the switching function for each of said set of continuous switching devices; means for a set of amplifier stages (item 50) to produce said linear controls for said switching functions; means to generate (item 40) a set of threshold values, and means to (item 30) provide a tuning voltage, dedicated for the voltage controlled capacitance change, for all of said amplifier stages.

With respect to claim method claim 19 and 29 the method steps described in the claim are inherently necessitated by the device claims of claim 14.

With respect to claim 26 and 30 Liu teaches amplifying the difference of the capacitance tuning voltage and the reference voltage of each amplifier stage to produce the linear control signal for said continually switching operation is performed by said operational amplifier (see Fig. 3).

With respect to claim 28 Liu teaches supplying a tuning voltage, dedicated for the voltage controlled capacitance change to all of said amplifier stages uses a signal connected to all amplifier inputs at the same time (see Fig. 3).

Conclusion

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The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. (US Pat No. 20040256917), (US Pat No. 20010020804), (US Pat No. 6882064), (US Pat No. 6285095), (US Pat No. 6437724), (US Pat No. 5949156), (US Pat No. 6184594), (US Pat No. 6013958), (US Pat No. 5949156) all teaches similar capacitance control systems which may be relevant to applicants invention.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael Rutland-Wallis whose telephone number is 571-272-5921. The examiner can normally be reached on Monday-Thursday 7:30AM-6:00PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lynn D. Feild can be reached on 571-272-2092. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

MRW


LYNN FEILD
SUPERVISORY PATENT EXAMINER